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AMENDED SPECIFICATION.

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PATENT SPECIFICATION



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PROVISIONAL SPECIFICATION.

Improvements in Juvenile Tricycles, Bicycles, and the like.

I, JOHN WILLIAM RICHARDS, of Victoria Foundry, Groveland Road, Dudley Port, in the County of Stafford, a British subject, do hereby declare the nature of this invention to be as follows:—

5 This invention relates to juvenile tricycles, bicycles, and the like, in which the foot pedals are locked solidly to the driving wheel hub which is mounted in the front forks of the frame, and has for its object to facilitate the introduction of the hub between the forks without the necessity of springing the limbs of the fork apart, which generally results in a permanent distortion and weakening of the same. The improvements also enable the parts to be disassembled for transit purposes and readily assembled at their destination.

20 The invention consists of a hub having in its boss at each side thereof a recess bounded by plane-sided walls, or oval-sided walls, or arcuated walls, or other irregularly shaped walls and pedal cranks with inwardly directed stub pins formed exteriorly with plane-sided, oval-sided, arcuated, or other correspondingly shaped sides to engage with the recess of the hub whereby the hub and pedal cranks are interlocked and rotate in the forks of the machine.

35 According to one mode of construction, a hub is made of a suitable length so that it will easily fit between the limbs of the fork and is provided at each side with a square-sided or other plane-sided recess in its boss extending inwardly for a short

distance, the hub being centrally bored intermediately of the said recesses. When the hub is fitted between the limbs 40 of the fork, its end recesses are brought coincident with circular openings or eyes in the bottom lugs or lower ends of the fork limbs.

The pedal cranks are formed or provided at the upper ends of the crank arms with inwardly projecting stub pins which are cylindrical in the part adjacent the said crank arms and at their inner ends terminate in an externally 50 square-sided or plane-sided part, the crank pin and arm being centrally bored for enabling a cross bolt to pass there-through for holding the members together, as hereafter described. 55

With the hub inserted between the fork limbs so that the recesses are brought into registration with the eyes in same, the stub pins on the ends of the crank arms are pushed through said eyes so as to bring the square-sided or plane-sided 60 ends of the pins into engagement with the recesses of the hub, the cylindrical parts of the pins freely engaging the eyes in the fork limbs so that the pedal cranks 65 and driving hub are locked solidly together against relative rotary movement and enable the machine to be propelled.

The plane-sided recesses in the bosses 70 of the hub may be tapered inwardly and the plane-sided stub pin ends tapered inwardly in corresponding manner to form a close fit with the plane-sided recesses.

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A cross bolt is passed through the concentric openings of the crank arms, crank pins, forks and hub, upon which pin may be placed a helical or other spring and nut for drawing up the members together.

In a modification, instead of the recess in the boss of the hub being bounded by plane sides, it may be bounded by oval sides, or a series of arcuated sides, or other irregularly shaped sides and the

crank pin end may be correspondingly shaped to engage with such recess so long as there is an interlocking means against relative rotary movement between the two parts.

Dated the 16th day of August, 1926.

GEORGE T. MILLARD,
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Agent for the Applicant.

COMPLETE SPECIFICATION (AMENDED).

Improvements in Juvenile Tricycles, Bicycles, and the like.

I, JOHN WILLIAM RICHARDS, of Victoria Foundry, Groveland Road, Dudley Port, in the County of Stafford, a British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to toy or juvenile tricycles, bicycles, and the like, in which the pedal cranks are locked solidly to the driving wheel hub which is mounted in the front forks of the machine, and has for its object to facilitate the introduction of the hub between the forks without the necessity of springing the forks apart, which generally results in a permanent distortion and weakening of the same. The improvements also facilitate disconnection of the parts for transit purposes and for easy assembly at their destination.

It has been proposed to provide each boss of the hub with an open slot and each pedal crank with an extended lip adapted to engage with the slot and to lock the parts together by a bolt passed through the hub and cranks, but no claim is made to this construction.

The invention according to one form consists of a wheel hub having sockets in its centre or boss bounded by square-sided or other plane-sided walls and pedal cranks having radial arms with inwardly and axially directed studs formed exteriorly with plane sides to engage with the sockets of the hub, and a bolt passed through the hub and cranks for drawing up same, whereby they are locked solidly together. In another form, the sockets in the hub may be bounded by oval-sided walls with which engage oval-sided crank studs. Or again, the sockets in the hub may be bounded by a number of arcuated sides or other irregularly shaped sides and the crank studs

with corresponding external sides to engage therewith.

The invention is illustrated diagrammatically in the accompanying drawings in which:—

Fig 1 is a perspective view of the hub, pedal cranks, and cross bolt when disconnected.

Fig. 2 is a front elevation in part section with the members assembled.

In a convenient embodiment of the invention, the wheel hub 1 is made of a suitable length so that it will easily fit between the forks 2 of a machine and is provided with an axial bore 3 continued at each end by an enlarged square-sided recess 4 extending inwardly for a short distance in its boss or centre 5. When the hub is fitted between the forks 2, its end recesses are brought coincident with circular openings or eyes in the bottom lugs or lower ends of said forks.

The cranks are adapted for foot pedals on their lateral arms 6 and have their radial arms 7 and 7a formed or provided at their heads with inwardly and axially projecting studs 8 which are cylindrical at the parts adjoining the heads of said radial arms and terminate in externally square-sided ends 9, the studs 8 and the heads of the crank arms 7 and 7a having a central bore 10 for receiving a cross bolt 11 to hold the members together, as hereafter described.

For assembly, the hub 1 is inserted between the front forks 2 of the machine so that the recesses 4 are brought into registration with the holes in the forks 2, the studs 8 at the heads of the radial arms 7 and 7a then being passed through the holes of the forks and thereby bringing the square-sided ends 9 of the crank studs 8 into engagement with the recesses 4 of the hub 1, with the cylindrical parts of the studs 8 freely engaging the holes in the forks. The cross

bolt 11 is then passed through the head of the radial arm 7 at one side of the machine and the adjacent stud 8, through the bore 3 of the hub 1 and thence through the stud 8 on the opposite radial crank arm 7a into engagement with a nut element 12 which may form part of the crank or be a separate element, whereby the cranks and hub are locked solidly together. Instead of a nut element formed as a projection on the head of the crank arm 7a, the head of the latter may be tapped to receive the bolt 11. The head of the bolt 11 may be keyed, squared, or otherwise shaped, and recessed into the head of the crank arm 7, thereby being held while the nut 12 (when a separate element) is being screwed on the opposite end of the bolt. The square-sided recesses 4 in the centres or bosses 5 of the hub 1 may be tapered inwardly and the square-sided ends 9 of the crank studs 8 may be tapered inwardly in a corresponding manner to form a close fit therewith.

In lieu of square-sided recesses in the bosses or centres of the hub, they may be of any other plane-sided form and the crank studs of corresponding form to engage therewith.

Alternatively, instead of the recesses in the boss or centre of the hub being bounded by plane sides, they may be bounded by oval sides, or a series of arcuated sides, or other irregularly shaped sides and the crank studs may be correspondingly shaped to engage with said recesses so that the members become solidly locked together when connected up.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In toy or juvenile tricycles, bicycles, and the like, the provision of a wheel hub having sockets in its centre or boss bounded by square-sided or other

plane-sided walls and pedal cranks having crank arms with inwardly and axially directed crank studs formed exteriorly with plane sides to engage with the sockets of the hub, and a bolt passed through the hub and cranks drawing up same, whereby they are locked solidly together.

2. In toy or juvenile tricycles, bicycles, and the like, the provision of a hub having sockets in its centre or boss bounded by oval-sided walls, arcuated walls, or other irregularly-shaped walls, and pedal cranks with inwardly and axially directed crank studs formed exteriorly with oval-sided, arcuated, or other correspondingly shaped sides to engage with the sockets of the hub, and a bolt passed through the hub and cranks whereby they are interlocked.

3. In toy or juvenile tricycles, bicycles, and the like, according to Claim 1, providing the hub, the heads of the crank arms and their studs with concentrically disposed openings when assembled, with one crank arm having its opening tapped or provided with a nut, and a cross bolt passed through the openings so as to engage the tapped part of, or nut on, the crank arm.

4. In toy or juvenile tricycles, bicycles, and the like, according to Claim 1 or Claim 2, providing the pedal cranks with lateral studs having cylindrical parts adjoining the heads of the radial crank arms and plane-sided or irregularly-sided inner ends to engage with corresponding recesses in the hub, the cylindrical parts of the crank studs being adapted to freely engage in the machine forks.

5. Toy or juvenile tricycles, bicycles, and the like, constructed and arranged substantially as described and illustrated.

Dated the 15th day of January, 1927.

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[This Drawing is a reproduction of the Original on a reduced scale.]

